

# Claims

- [c0001] 1. A powershift transmission having two transmission paths (A, B), a friction clutch (4, 5) being assigned to each transmission path (A, B) and the transmission paths (A, B) being coupleable to an output shaft for torque transmission, characterized by a device that detects the clutch torque transmitted by the friction clutch (4, 5) of the active transmission path (A, B) coupled to the output shaft and, when the clutch torque falls below a threshold value, initiates a disengagement of the active gear ratio.
- [c0002] 2. The powershift transmission as described in Claim 1, wherein the device is functionally coupled to a transmission control for the reception of signals that signal a push downshift and the device may be activated via the signals for detection of the clutch torque.
- [c0003] 3. The powershift transmission as described in Claim 1, wherein the device is configured to output to a transmission control a signal to disengage the active gear ratio.
- [c0004] 4. The powershift transmission as described in Claim 2, wherein the device is configured to output to a transmission control a signal to disengage the active gear ratio.

[c0005] 5. The powershift transmission as described in Claim 1, wherein the device is configured for the detection of vibrations in the drivetrain of a vehicle that is provided with the powershift transmission.

[c0006] 6. The powershift transmission as described in Claim 2, wherein the device is configured for the detection of vibrations in the drivetrain of a vehicle that is provided with the powershift transmission.

[c0007] 7. The powershift transmission as described in Claim 3, wherein the device is configured for the detection of vibrations in the drivetrain of a vehicle that is provided with the powershift transmission.

[c0008] 8. The powershift transmission as described in Claim 5, wherein the device is configured for vehicle-specific determination of the clutch torque threshold value below which drivetrain vibrations occur.

[c0009] 9. The powershift transmission as described in Claim 6, wherein the device is configured for vehicle-specific determination of the clutch torque threshold value below which drivetrain vibrations occur.

[c0010] 10. The powershift transmission as described in Claim 7, wherein the device is configured for vehicle-specific de-

termination of the clutch torque threshold value below which drivetrain vibrations occur.

[c0011] 11. The method for the control of a push downshift of a powershift transmission (3) having two transmission paths (A; B) using the following steps:

a) it is determined that in the inactive transmission path (transmission path A) a lower gear ratio is to be engaged than the gear ratio that is engaged in the active transmission path (transmission path B);

b) the transmitted torque of the clutch assigned to transmission path B is calculated;

c) a determination is made as to whether transmission path B is in the neutral position;

d) as a function of the determination in step b) and step

c) a signal is output to the transmission control to drive transmission path B into the neutral position;

e) as a function of the determination in step c) a signal is output to the transmission control to engage the lower gear ratio in transmission path A;

#### ABSTRACT OF THE DISCLOSURE

A powershift transmission is proposed using two transmission paths, a friction clutch being assigned to each transmission path and the transmission paths being coupleable to an output shaft for torque transmission. The transmission has a device that detects the clutch

torque transmitted by the friction clutch of the active transmission path, which is coupled to the output shaft, and, when the clutch torque falls below threshold value, initiates a disengagement of the active gear ratio.